

WHAT IS CLAIMED IS:

- 1                   1.     A method for determining a sequence in which  
2     microstructures are to be processed at a laser-processing site, the method  
3     comprising:  
4                   receiving reference data which represent locations of microstructures  
5     to be processed at the site;  
6                   coalescing adjacent groups of microstructures into clusters of  
7     microstructures including edge clusters which contain microstructures located near  
8     travel limits of a motor-driven stage which moves the microstructures relative to a  
9     laser beam at the site;  
10                  dividing a cluster fragment from each edge cluster wherein the cluster  
11     fragments contain the microstructures located near the travel limits; and  
12                  sorting the clusters and cluster fragments to obtain data which  
13     represent a substantially optimum sequence in which the microstructures are to be  
14     processed to increase throughput at the site.
- 1                   2.     The method as claimed in claim 1 wherein the step of sorting  
2     is based on energy expended in at least one coil of at least one motor in response to  
3     motor commands.
- 1                   3.     The method as claimed in claim 1 wherein each of the cluster  
2     and cluster fragments has a plurality of possible processing directions and wherein  
3     the step of sorting includes the step of determining a substantially optimum direction  
4     in which to process the microstructures.
- 1                   4.     The method as claimed in claim 1 wherein the step of sorting  
2     includes the steps of selecting a substantially optimum cluster or cluster fragment  
3     to be initially processed at the site, then determining a plurality of possible  
4     sequences for processing the remaining clusters and cluster fragments and selecting  
5     a substantially optimum sequence from the plurality of possible sequences.

1                   5.     The method as claimed in claim 1 wherein the microstructures  
2     are located on dice of a wafer.

1                   6.     A subsystem for determining a sequence in which  
2     microstructures are to be processed at a laser-processing site, the subsystem  
3     comprising:  
4                   means for receiving reference data which represent locations of  
5     microstructures to be processed at the site;  
6                   means for coalescing adjacent groups of microstructures into clusters  
7     of microstructures including edge clusters which contain microstructures located  
8     near travel limits of a motor-driven stage which moves the microstructures relative  
9     to a laser beam at the site;  
10                  means for dividing a cluster fragment from each edge cluster wherein  
11     the cluster fragments contain the microstructures located near the travel limits; and  
12                  means for sorting the clusters and cluster fragments to obtain data  
13     which represent a substantially optimum sequence in which the microstructures are  
14     to be processed to increase throughput at the site.

1                   7.     The subsystem as claimed in claim 6 wherein the means for  
2     sorting sorts based on energy expended in at least one coil of at least one motor in  
3     response to motor commands.

1                   8.     The subsystem as claimed in claim 6 wherein each of the  
2     clusters and cluster fragments has a plurality of possible processing directions and  
3     wherein the means for sorting includes means for determining a substantially  
4     optimum direction in which to process the microstructures.

1                   9.     The subsystem as claimed in claim 6 wherein the means for  
2     sorting includes means for selecting a substantially optimum cluster or cluster  
3     fragment to be initially processed at the site, for determining a plurality of possible  
4     sequences for processing the remaining clusters and cluster fragments and for  
5     selecting a substantially optimum sequence from the plurality of possible sequences.

1                   10.    The subsystem as claimed in claim 6 wherein the  
2   microstructures are located on dice of a wafer.

1                   11.    The subsystem as claimed in claim 10 wherein the  
2   microstructures are conductive lines of the dice.

1                   12.    The subsystem as claimed in claim 11 wherein the conductive  
2   lines are metal lines.

1                   13.    The subsystem as claimed in claim 11 wherein the dice are  
2   semiconductor memory devices and wherein the conductive lines are to be ablated  
3   at the site to repair defective memory cells of the devices.

1                   14.    The subsystem as claimed in claim 6 wherein the  
2   microstructures are parts of a semiconductor device.

1                   15.    The subsystem as claimed in claim 14 wherein the  
2   semiconductor device is a microelectromechanical device.

1                   16.    The subsystem as claimed in claim 14 wherein the  
2   semiconductor device is a silicon semiconductor device.

1                   17.    The subsystem as claimed in claim 14 wherein the  
2   semiconductor device is a semiconductor memory.

1                   18.    The subsystem as claimed in claim 6 wherein the  
2   microstructures are parts of a microelectronic device.

1                   19.    The subsystem as claimed in claim 6 wherein the  
2   microstructures in each group have a substantially common pitch.

- 1                           20.     The subsystem as claimed in claim 7 wherein the stage is an
- 2     x-y stage and wherein the means for sorting sorts based on energy expended in a
- 3     plurality of coils of a plurality of motors in response to motor commands.